

**NAUCORIDAE (HETEROPTERA) OF NEW GUINEA. 5.
A REVIEW OF *TANYCRICOS* LA RIVERS IN IRIAN JAYA,
WITH DESCRIPTIONS OF TWO NEW SPECIES**

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Abstract.—Two new species of *Tanycricos* are described and illustrated from the Indonesian province of Irian Jaya, comprising western New Guinea: *T. jaetipi* n. sp. and *T. ziva* n. sp., both from the upper Wapoga River basin. Additional records are given for previously described species of *Tanycricos* in Irian Jaya, and island wide distribution maps are provided for all species in the genus.

The genus *Tanycricos* was proposed by La Rivers (1971) to hold a set of impressively large naucorids from the central mountains of New Guinea. An additional species was described by Polhemus and Polhemus (1986), who also provided a revised key.

Due to disproportionate collecting effort in eastern New Guinea, all but one of the previously named species in the genus were described from that half of the island, comprising the country of Papua New Guinea. The exception, *T. acumentum* La Rivers, was described from the Star Mountains of Irian Jaya, but also occurs widely in the central ranges of Papua New Guinea as well. Until now, no species of *Tanycricos* was known to be strictly endemic to western New Guinea, the Indonesian province of Irian Jaya, thereby producing the impression that the genus was disproportionately speciose in the east. This picture has changed, however, based on recent collections from the Wapoga River basin of northwestern Irian Jaya, which have led to the discovery to two new species, described below. These new taxa are apparently restricted to the western portion of the island's central ranges, and indicate that speciation in the genus is more geographically balanced than was previously evident.

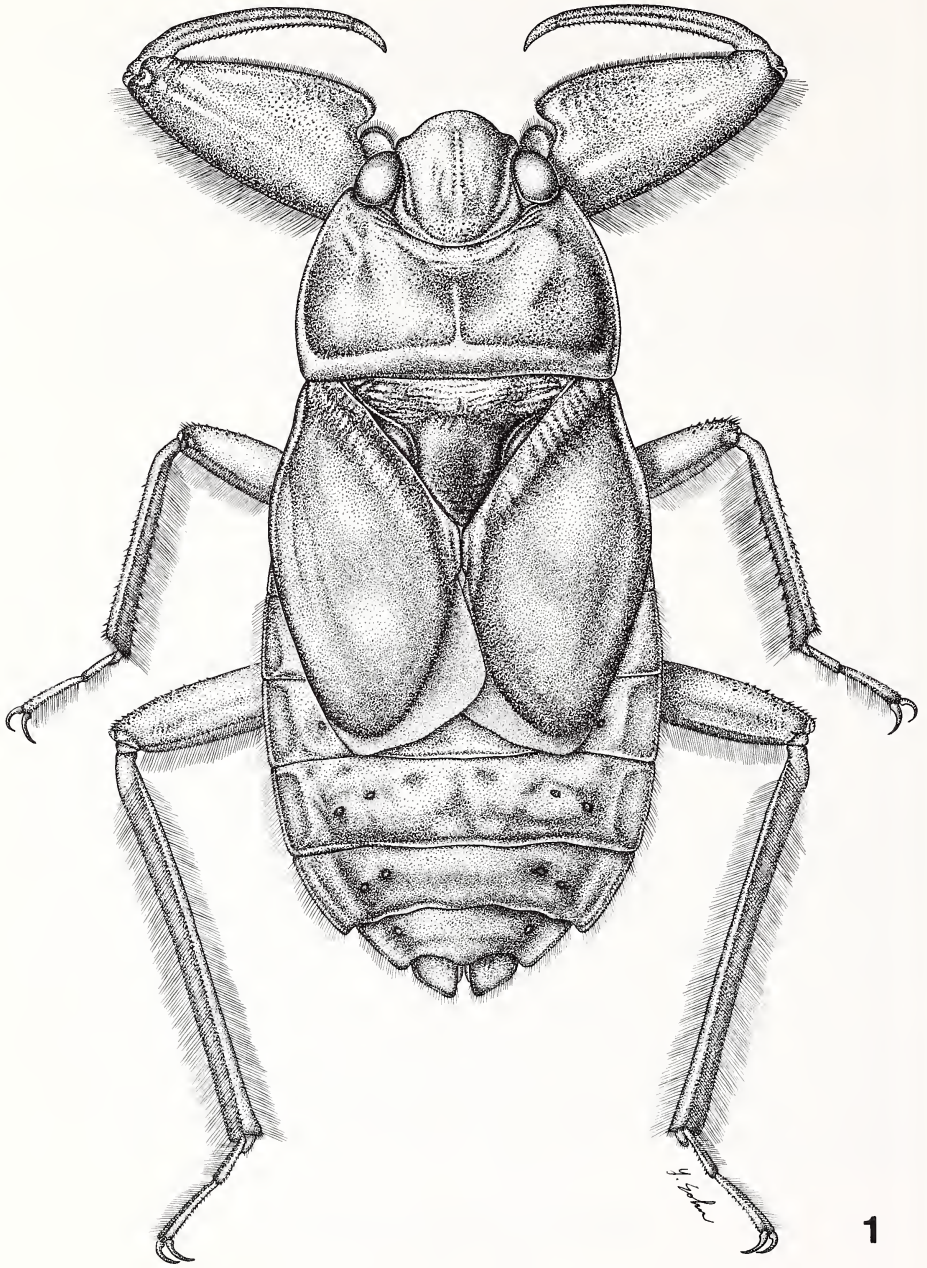
All measurements are in millimeters. Specimen depository abbreviations are as indicated in the acknowledgments. The notation "PTFI" in the material examined sections refers to the P. T. Freeport Indonesia mining company, which provided logistical support for the Wapoga Basin surveys. CL numbers refer to collection numbering codes used by the author to cross reference specimens, photographs, and ecological data.

***Tanycricos jaetipi*, new species**

Figs. 1-3, 6, 8

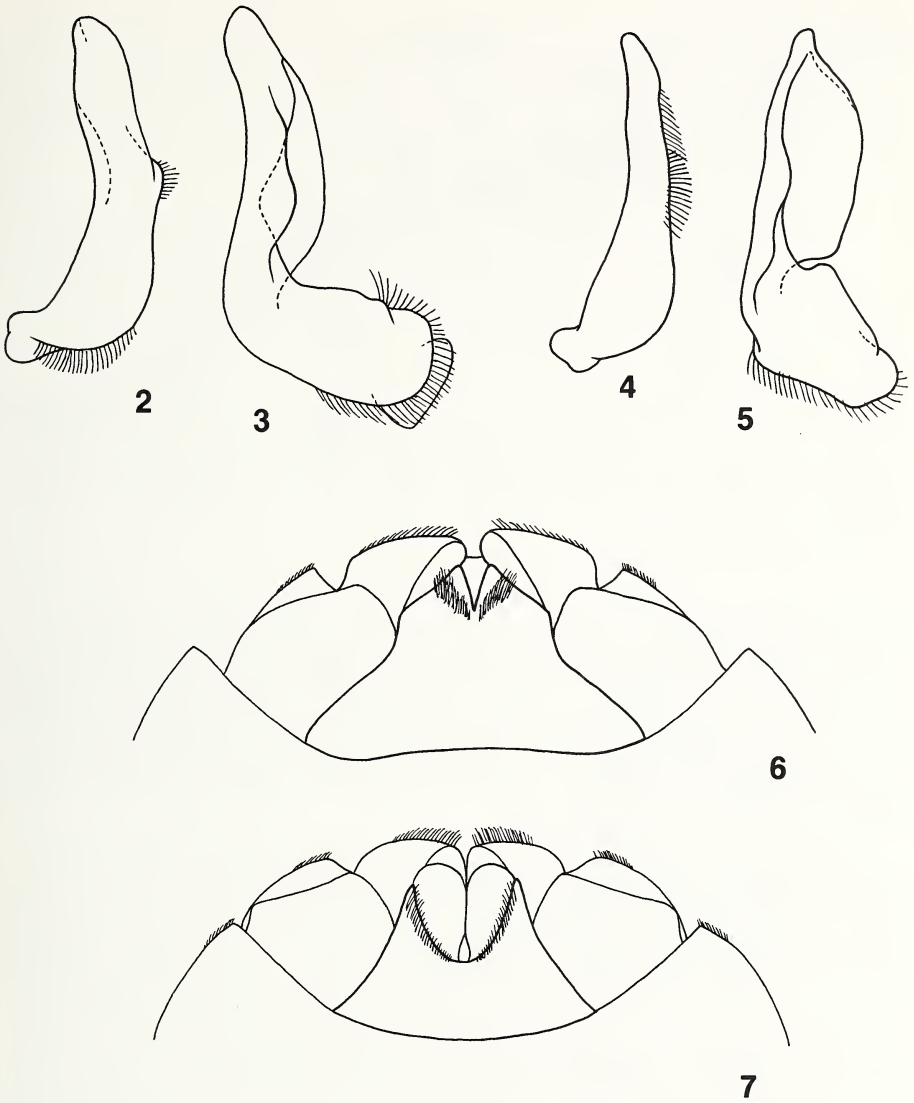
Diagnosis. A large, robust *Tanycricos* species (Fig. 1), recognized by the shapes of the male parameres (Figs. 2, 3) and the female subgenital plate (Fig. 6).

Description. *Brachypterous male.* Large for genus, form robust (Fig. 1), basic coloration medium yellowish brown, shaded with darker brown on hemelytra, at muscle



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Fig. 1. *Tanyricos jaetipi*, brachypterous female, dorsal habitus.



Figs. 2–7. Male parameres of *Tanycricos* species. 2. *T. jaetipi*, left paramere. 3. *T. jaetipi*, right paramere. 4. *T. ziwa*, left paramere. 5. *T. ziwa*, right paramere. 6. Female subgenital plates of *Tanycricos* species. 6. *T. jaetipi*. 7. *T. ziwa*.

attachment scars on pronotum, and on dorsal abdomen. Length 19.90; maximum width (across abdomen) 8.60.

Head yellowish brown, slightly darker along longitudinal midline and adjacent to eyes, width/length 4.45/3.30; eyes black, shining, rounded, protrusive, anterior/posterior interocular width 2.70/2.90, eyes separated from vertex by deep furrows; an-

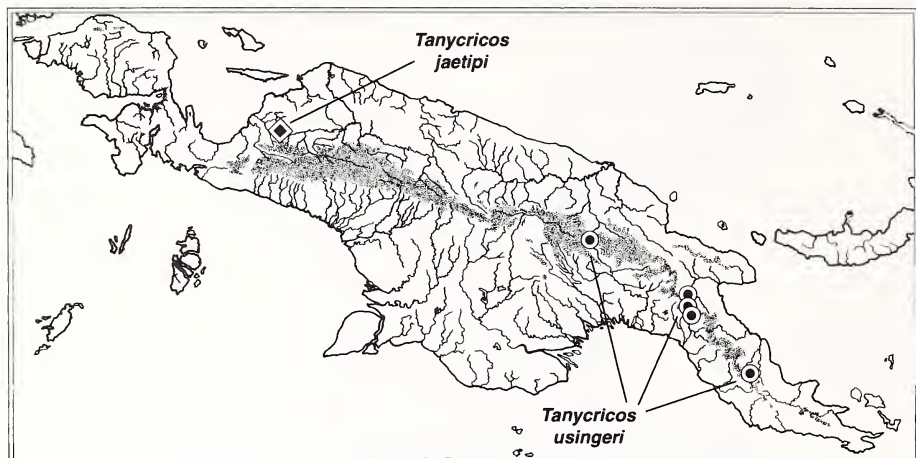


Fig. 8. Distribution of *Tanyricos jaetipi* n. sp. and *Tanyricos usingeri* La Rivers in New Guinea.

teclypeus with basolateral sections adjoining anterior apices of eyes thinned and slightly explanate, apex with a pair (1+1) of shallow depressions to either side of midline, greatly produced anteriorly, projecting far beyond base of labrum and apices of maxillary plates; labrum dark yellow, anterior margin broadly rounded; maxillary plates well developed, horizontally oriented basally, anterior margins upturned vertically along margins of rostral cavity; antennae slender, yellowish, segment IV longest, with tip barely exceeding lateral eye margin; vertex well produced posteriorly behind eyes, margin evenly rounded.

Pronotum dull yellowish brown, mottled with darker brown, weakly depressed medially behind vertex of head, width/length (midline) 7.10/3.15, lateral margins broadly arcuate, posterior margin weakly bisinuate, delineated by a deep furrow, anterolateral angles acute, rounded, posterolateral angles obtuse, rounded. *Scutellum* medium brown, width/length (midline) 5.25/3.30, lateral margins weakly sinuate, basal section with deep transverse sulcus, central section shining. *Wings* dark brown, with fine granular microstructure, brachypterous, truncate posteriorly, apices extending to basal section of abdominal tergite IV, embolium delineated by a sinuate furrow, margin narrowly gold, clavus obscure, membrane represented by a narrow dark flap posteriorly, posterior margin gently curved, venation of hemelytron and membrane absent.

Abdomen medium brown, with lateral sections of tergites I and II, lateral and posterior sections of tergite III, all of tergite IV, lateral sections of tergite V, lateral and posterior sections of tergite VI, and lateral sections of tergite VII exposed; lateral margins of all segments fringed with a few long, fine, recumbent, gold setae; posterolateral angles of all segments rounded or gently angulate, not produced or spinose; visible lateral sections of tergite V not asymmetrical; visible lateral sections of tergite VI each bearing an elongate, raised patch of short dark setae along entire anterior margin.

Ventral surface medium brown, head, medial portions of thoracic plates, and abdominal sternites with dense covering of shining, recumbent gold setae; head with prominent medial keel bearing a small raised tooth at posterior apex; prosternum with low longitudinal medial carina, more prominently raised anteriorly; proepimeron bearing an elongate oval golden sense organ set inside lateral margin behind anterolateral angle, mesosternal plate small, not raised, lacking a medial carina; mesepimeron, metasternum, and metepimeron bare, lacking hydrofuge pile; abdominal paratergites I–VI with scattered paired, glabrous, ovate depressions in the hair pile lying inward from spiracles; spiracles marked by slightly raised hair clumps.

Legs dark yellowish brown to medium brown, finely spotted with dark brown on dorsal surface of fore femur; anterior femora with posterior margin bearing a ridge of small dark tubercles lying just posterior to a band of long, recumbent gold setae, anterior margin bearing a thick pad of short, stiff gold setae; anterior tibia slender, gently curving, bearing a single tarsal segment and claw; middle and posterior coxae each with single raised brown tubercle apically; middle and posterior femora bearing numerous tiny reddish spinules on anterior and posterior faces; middle and posterior tibiae set with numerous small, reddish spines and spinules, apices with 5 and 6 transverse rows of reddish spines respectively; middle and posterior femora, tibiae and tarsi all bearing fringes of long, golden swimming hairs along posterior margins; claws sharply bent, tips dark, parempodia setiform.

Genitalia with left paramere moderately stout, broadly curving, bearing a small projecting tab near the center of the outer margin (Fig. 2); right paramere L-shaped, distal section fluted, with an elongate depression on the inner face that cradles the phallosome when the structures are at rest (Fig. 3).

Brachypterous female. Similar to brachypterous male in general structure and coloration, but with following exceptions: length 17.60, maximum width (across abdomen) 8.35. *Subgenital plate* narrowed on distal section, with a deep, V-shaped medial incision at tip (Fig. 6).

Macropterous female. Similar to brachypterous male in general structure and coloration, but with following exceptions: Form slender and parallel sided, length 19.00, maximum width (across abdomen) 8.05; scutellum shining black, raised, swollen; hemelytra with clavus and claval vein well defined, membrane in existing specimen disintegrated; prosternum raised and swollen posteromedially.

Macropterous male. Unknown.

Etymology. The name “*jaetipi*” is an arbitrary combination of letters that is acoustically identical to the initials of John T. Polhemus, and thereby honors this outstanding heteropterist.

Discussion. In general appearance, *T. jaetipi* is similar to *T. usingeri*, but the two species may be immediately separated by the shape of the male parameres (Figs. 2, 3), and the shape of the female subgenital plate (Fig. 6). The lateral tab on the outer margin of the left paramere that is diagnostic for *T. jaetipi* shows only an incipient development in *T. usingeri* (see Polhemus and Polhemus, 1986, Fig. 4), and the distal portion of the paramere is more slender in this species. In females of *T. jaetipi* the medial incision at the posterior apex of the subgenital plate is relatively narrow, shallow, and V-shaped (Fig. 6), while in *T. usingeri* it is much deeper and widens to form a rounded opening near the center of the plate (see Polhemus and Polhemus,

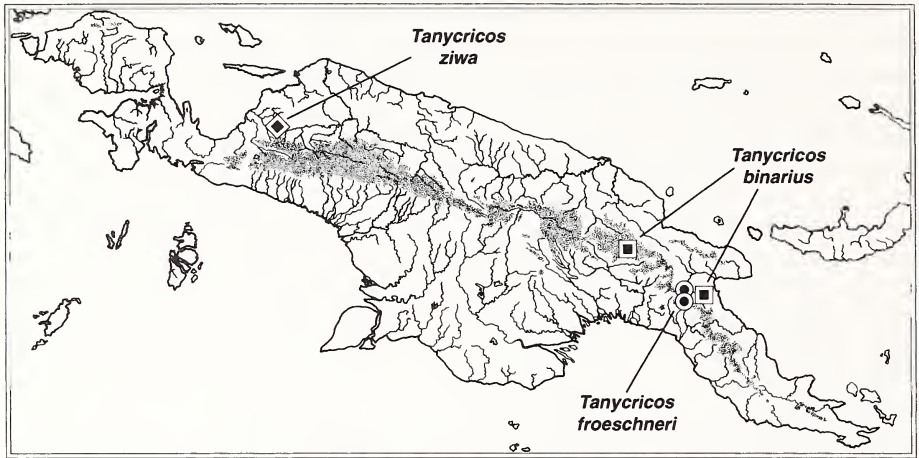


Fig. 9. Distribution of *Tanycricos ziwa* n. sp., *Tanycricos binarius* La Rivers, and *Tanycricos froeschneri* Polhemus & Polhemus in New Guinea.

1986, Fig. 19). The two species occupy ranges at opposite ends of the New Guinea central ranges (Fig. 8), and may eventually prove to be sister taxa.

The type series was taken along the margins of the Ziwa River, a large, very swift river dropping rapidly through a mostly unshaded bed of igneous boulders, rocks and cobbles. The few specimens obtained were taken from scattered shallow pockets along the stream margins where current speed was moderated, allowing localized deposition of smaller cobbles and gravel; one such area included the mouth of the small tributary from which the type series of *Tanycricos ziwa* was obtained (see below). These same areas also supported additional naucorids in the genera *Idiocarus* and *Nesocricos*.

Types. Holotype: brachypterous female, INDONESIA, Irian Jaya Prov., New Guinea, upper Ziwa River at PTFI Wapoga Alpha drilling camp, 1,050 m (3,500 ft), water temp. 19°C, 19 April 1998, 08:00–12:00 h, 3°08.69'S, 136°34.42'E, CL 7101, D. A. Polhemus (LIPI). Paratypes: INDONESIA, Irian Jaya Prov., New Guinea: 1 brachypterous male, 1 macropterous female, same data as holotype (USNM).

***Tanycricos ziwa*, new species**

Figs. 3, 4, 7, 9

Diagnosis. A relatively small and slender *Tanycricos* species, recognized by the shapes of the male parameres (Figs. 4, 5) and the female subgenital plate (Fig. 7).

Description. *Brachypterous male.* Small for genus, form elongate, basic coloration yellowish brown, shaded with darker brown on hemelytra and at muscle attachment scars on pronotum. Length 14.50; maximum width (across abdomen) 7.15.

Head yellowish brown, slightly darker along longitudinal midline and adjacent to eyes, width/length 3.75/2.95; eyes dark brown, shining, rounded, protrusive, anterior/posterior interocular width 2.15/2.20, eyes separated from vertex by deep furrows; anteclypeus with basolateral sections adjoining anterior apices of eyes thinned and

slightly explanate, apex with a pair (1+1) of shallow depressions to either side of midline, greatly produced anteriorly, projecting far beyond base of labrum and apices of maxillary plates; labrum dark yellow, anterior margin broadly rounded; maxillary plates well developed, horizontally oriented basally, anterior margins upturned vertically along margins of rostral cavity; antennae slender, yellowish, segment IV longest, with tip barely exceeding lateral eye margin; vertex well produced posteriorly behind eyes, margin evenly rounded.

Pronotum yellowish brown, mottled with darker brown, weakly depressed medially behind vertex of head, width/length (midline) 5.75/2.50, lateral margins broadly arcuate, posterior margin weakly bisinuate, delineated by a deep furrow, anterolateral angles acute, sharp, posterolateral angles obtuse, rounded. *Scutellum* yellowish brown, width/length (midline) 2.25/4.20, lateral margins weakly sinuate, basal section with deep transverse sulcus, central section rugulose, posterior apex with transverse striae. *Wings* dark brown, with fine granular microstructure, brachypterous, truncate posteriorly, not attaining posterior margin of abdominal tergite III, embolium golden yellow, delineated by a sinuate furrow, clavus obscure, membrane represented by a small dark flap posteriorly, venation of hemelytron and membrane absent.

Abdomen medium brown, with lateral sections of tergites I and II, lateral and posterior sections of tergite III, all of tergite IV, lateral sections of tergite V, lateral and posterior sections of tergite VI, and lateral sections of tergite VII exposed; lateral margins of all segments fringed with short, stiff gold setae and long, fine, recumbent, gold setae; posterolateral angles of all segments rounded or gently angulate, not produced or spinose; visible lateral sections of tergite V slightly asymmetrical, more greatly produced on left side; visible lateral sections of tergite VI each bearing a round, raised patch of short dark setae near anterior margin.

Ventral surface medium brown, head, medial portions of thoracic plates, and abdominal ventrites with dense covering of shining, recumbent gold setae; head with prominent medial keel lacking teeth at anterior and posterior apices, prosternum with low longitudinal medial carina, more prominently raised anteriorly; proepimeron bearing an elongate oval golden sense organ set inside lateral margin behind anterolateral angle, mesosternal plate small, not raised, lacking a medial carina; mesepimeron, metasternum, and metepimeron bare, lacking hydrofuge pile; abdominal paratergites I–VI with scattered paired, glabrous, ovate depressions in the hair pile lying inward from spiracles; spiracles marked by slightly raised hair clumps.

Legs dark yellowish, finely spotted with brown on dorsal surface of fore femur; anterior femora with posterior margin bearing a ridge of small dark spinules lying just posterior to a band of long, recumbent gold setae, anterior margin bearing a thick pad of short, stiff gold setae; anterior tibia slender, gently curving, bearing a single tarsal segment and claw; middle and posterior coxae each with single raised gold tubercle apically; middle and posterior femora bearing numerous small, dark spinules on anterior and posterior faces; middle and posterior tibiae set with numerous small, dark spines and spinules, apices with 4 and 5 transverse rows of dark spines respectively; middle and posterior femora, tibiae and tarsi all bearing fringes of long, golden swimming hairs along posterior margins; claws sharply bent, tips dark, parempodia setiform.

Genitalia with left paramere slender and tapering (Fig. 4); right paramere with

distal section greatly expanded, forming a broad depression which cradles the phalotheca when the structures are at rest (Fig. 5).

Brachypterous female. Similar to brachypterous male in general structure and coloration, but with following exceptions: form broader and more pear-shaped due to posterior widening of abdomen, length 14.40, maximum width (across abdomen) 7.30; abdominal asymmetry absent. *Subgenital plate* broadly and deeply incised medially, leaving a pair (1 + 1) of slender, tapering projections to either side of midline (Fig. 7).

Macropterous form. Unknown.

Etymology. The name "ziwa" is a noun in apposition and refers to the Ziwa River type locality.

Discussion. *Tanycricos ziwa* n. sp. runs to *T. usingeri* La Rivers in the key of Polhemus and Polhemus (1986) due to the unmodified posterolateral abdominal angles in both sexes, but can be easily separated from that species by its smaller size, less robust form, differently shaped male parameres (Figs. 4, 5), and differently shaped female subgenital plate (Fig. 7). The male left paramere is most similar in overall form to that of *T. acumentum* La Rivers (see Polhemus and Polhemus, 1986, Fig. 2), but is not as slender on the distal half. Similarly, the female subgenital plate has a broad central incision similar to that of *T. acumentum* (see Polhemus and Polhemus, 1986, Fig. 17), but in *T. ziwa* this incision is extremely deep and broad, dividing the distal section of the plate into a pair of acuminate processes (Fig. 7).

The type series was taken from a clear, shallow tributary to the upper Ziwa River, flowing in a bed of rocks, cobbles, and gravel, and shaded by primary montane rain forest. Most of the specimens were taken in an open cobble run, with moderate current speed and water varying from 0.25 to 0.50 m in depth. Adults appeared to prefer situations in the lee of larger rocks, while immatures were more widely distributed amid the cobbles and gravels, occurring sympatrically with several *Idiocarus* species.

Types. Holotype: female, INDONESIA, **Irian Jaya Prov.**, New Guinea, rocky rainforest tributary to upper Ziwa River at PTFI Wapoga Alpha drilling camp, 1,050 m (3,500 ft), water temp. 20°C, 18 April 1998, 10:00–17:00 h, 3°08.69'S, 136°34.42'E, CL 7100, D. A. Polhemus (LIPI). Paratypes: INDONESIA, **Irian Jaya Prov.**, New Guinea: 5 females, same data as holotype (USNM, JTTC); 1 male, upper Ziwa River at PTFI Wapoga Alpha drilling camp, 1,050 m (3,500 ft), water temp. 19°C, 19 April 1998, 08:00–12:00 h, 3°08.69'S, 136°34.42'E, CL 7100, D. A. Polhemus (USNM).

Tanycricos acumentum La Rivers

Fig. 10

Tanycricos acumentum La Rivers, 1971, 2: 5.

Discussion. This species has proven to be widespread throughout the entire central mountain chain of Irian Jaya at elevations above 1,000 meters.

Material examined. INDONESIA, **Irian Jaya Prov.**, New Guinea: 9 brachypterous males, 2 brachypterous females, swift rocky stream in upper Pass Valley, 52 km. NE of Wamena, 2,015 m (6,600 ft), water temp. 14°C, 23 September 1991, CL 2614, D. A. and J. T. Polhemus (JTTC, BPBM, LIPI); 13 brachypterous males, 6 brachypterous females, 34 immatures, Okilik River, 5 km. SE of Wamena, 1,850 m (6,070

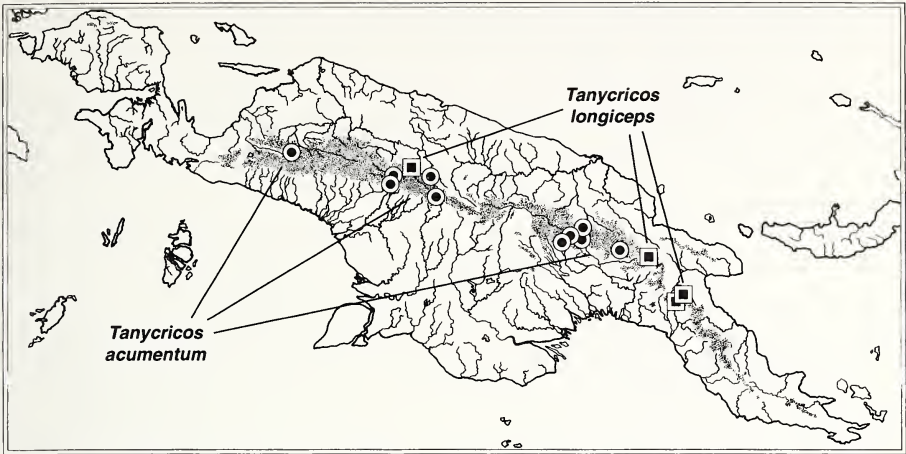


Fig. 10. Distribution of *Tanycricos longiceps* La Rivers and *Tanycricos acumentum* La Rivers in New Guinea.

ft), 5 January 1992, R. Ubaidillah (JTTC, BPBM, LIPI); 1 macropterous male, 2 macropterous females, 1 brachypterous male, Bime, 1,400 m, 4°30'S, 140°12'E, 11 September 1993, Balke and Reidel (NHMW, USNM); 1 macropterous male, 1 brachypterous male, 1 brachypterous female, Juarima, trib. to Baliem River, 1,850 m, 13 October 1993, Balke and Reidel (NHMW, USNM); 5 males, 2 females, Wabu River below PTFI Bilogai exploration camp, 2,105 m (6,900 ft), water temp. 17°C, 1 April 1997, 08:30–14:00 h, 3°44.69'S, 137°01.75E, PTFI aquatic biodiversity sampling station #39, CL 7083, D. A. & J. T. Polhemus (USNM, LIPI).

Tanycricos longiceps La Rivers

Fig. 10

Tanycricos longiceps La Rivers, 1971, 2: 10.

Discussion. This is the first record of this species for Irian Jaya, and comes from the Star Mountains, a mountain range that also extends eastward into Papua New Guinea.

Material examined. INDONESIA, Irian Jaya Prov., New Guinea: 2 macropterous males, 1 macropterous female, Emdoman, 800–1,000 m, 4°12'S, 139°55'E, 28 September 1993, Balke and Reidel (NHMW, USNM).

ACKNOWLEDGMENTS

I wish to thank Burke Burnett and Andy Mack of Conservation International for organizing the survey of the Wapoga River basin under their Rapid Assessment Program, which led to the discovery of the two new species of *Tanycricos* reported herein. Special thanks are also due to Scott Baker and Peter C. van den Hoek Ostende ("Papa Tango") of the P. T. Freeport Indonesia (PTFI) exploration division, and to Howard Lewis and Kent Hortle of the PTFI environmental laboratory, who coordinated logistical support for the Wapoga Basin surveys.

The holotypes of the new species described herein are deposited in the collection of the

Indonesian Institute of Sciences, at Cibinong, Java (LIPI); paratypes are held in the National Museum of Natural History, Smithsonian Institution (USNM), and in the J. T. Polhemus collection, Englewood, Colorado (JTPC).

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